Inverter capacitor calculator

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I'm using TIDA-01606 as a reference for a three-phase inverter design. What I'd like to know is how did you calculate the required capacitance for the dc-bus (which is shown as a split capacitor in the general diagram). From the image of the assembled kit, it looks like it takes eight electrolytic capacitors. So, can you please indicate how did you design that specific part of the input circuit?

The capacitance has been selected in order to have a reasonable energy storage in the DC bus. Currently, there are equivalent 240uF. This capacitance has been selected by applying the sequent formula:

Here you can calculate the snubber capacitance that is needed to keep transient voltages below the maximum allowed value. Stray inductance is the inductance in the primary circuit of the inverter. If the stray inductance is not known, the two estimates can be used, high estimate for cable/wire primaries or long distances. Low estimate for copper busbar and short distances.

Formulas usedCalculated snubber capacitance = Stray inductance * Peak current^2 / (maximum allowed transient voltage – DC bus voltage)^2Snubber capacitance is given in Farad, stray indutance is given in Henry and voltage in Volt.Estimated high inductance snubber capacitance = Peak current / 100Estimated low inductance snubber capacitance = (Peak current / 100) * 0.5

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